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## SEQUENCE LISTING

## (1) GENERAL INFORMATION:

- (i) APPLICANT: (US only) BROADY, K. W. and TSENG, A. P. S.  
(other than US) Analytica, Ltd
- (ii) TITLE OF INVENTION: A METHOD OF TREATMENT
- (iii) NUMBER OF SEQUENCES: 45
- (iv) CORRESPONDENCE ADDRESS:
  - (A) ADDRESSEE: DAVIES COLLISON CAVE
  - (B) STREET: 1 LITTLE COLLINS STREET
  - (C) CITY: MELBOURNE
  - (D) STATE: VICTORIA
  - (E) COUNTRY: AUSTRALIA
  - (F) ZIP: 3000
- (v) COMPUTER READABLE FORM:
  - (A) MEDIUM TYPE: Floppy disk
  - (B) COMPUTER: IBM PC compatible
  - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
  - (D) SOFTWARE: PatentIn Release #1.0, Version #1.25
- (vi) CURRENT APPLICATION DATA:
  - (A) APPLICATION NUMBER: International PCT
  - (B) FILING DATE: 1999/11/12
- (vii) PRIORITY DATA:
  - (A) APPLICATION NUMBER: 60/108254
  - (B) FILING DATE: 1998/11/12
- (viii) ATTORNEY/AGENT INFORMATION:
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  - (C) TELEX: AA 31787

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## (2) INFORMATION FOR SEQ ID NO:1:

## (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 202 amino acids

(B) TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

Met Lys Ser Leu Gln Ile Ile Cys Leu Leu Phe Val Leu Val Ala Arg  
 1 5 10 15  
 Gly Ser Cys His Ser Cys Glu Ile Cys His Asn Leu Gly Arg Asp Cys  
 20 25 30  
 Glu Thr Glu Glu Ala Glu Glu Cys Ala Ser Pro Glu Asp Gln Cys Gly  
 35 40 45  
 Thr Val Leu Met Glu Val Ser Ser Ala Pro Ile Ser Phe Arg Ser Ile  
 50 55 60  
 His Arg Asn Cys Phe Ser Ser Ser Leu Cys Lys Leu Glu Arg Phe Asp  
 65 70 75 80  
 Ile Asn Ile Gly His Asp Ser Tyr Leu Arg Gly Arg Ile His Cys Cys  
 85 90 95  
 Asp Glu Ala Arg Cys Glu Ala Gln Gln Phe Pro Gly Leu Pro Leu Ser  
 100 105 110  
 Phe Pro Asn Gly Tyr His Cys Pro Gly Ile Leu Gly Val Phe Ser Val  
 115 120 125  
 Asp Ser Ser Glu His Glu Ala Ile Cys Arg Gly Thr Glu Thr Lys Cys  
 130 135 140  
 Ile Asn Leu Ala Gly Phe Arg Lys Glu Arg Phe Pro Gly Asp Ile Ala  
 145 150 155 160  
 Tyr Asn Ile Lys Gly Cys Thr Ser Ser Cys Pro Glu Leu Arg Leu Ser  
 165 170 175  
 Asn Arg Thr His Glu Glu Asp Arg Asn Gly Leu Ile Lys Val Glu Cys  
 180 185 190

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Thr Asp Ala Ser Lys Ile Thr Pro Ser Glu  
195 200

## (2) INFORMATION FOR SEQ ID NO:2:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 202 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: protein

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Met Ile Ser Leu Gln Ile Ile Cys Phe Leu Phe Val Leu Val Ala Arg  
1 5 10 15

Gly Ser Cys His Ser Cys Glu Ile Cys Arg Asn Phe Gly Lys Asp Cys  
20 25 30

Glu Ser Glu Glu Ala Glu Glu Cys Ala Ser Pro Glu Asp Gln Cys Gly  
35 40 45

Thr Val Leu Leu Glu Ile Ser Ser Ala Pro Ile Ser Phe Arg Ser Ile  
50 55 60

His Arg Asn Cys Phe Ser Ser Ser Leu Cys Lys Leu Glu His Phe Asp  
65 70 75 80

Ile Asn Ile Gly His Asp Ser Tyr Val Arg Gly Arg Ile His Cys Cys  
85 90 95

Asp Glu Glu Arg Cys Glu Ala Gln Gln Phe Pro Gly Leu Pro Pro Ser  
100 105 110

Leu Pro Asn Gly Tyr His Cys Pro Gly Ile Leu Gly Ala Phe Ser Val  
115 120 125

Asp Ser Ser Glu His Glu Ala Ile Cys Arg Gly Thr Glu Thr Lys Cys  
130 135 140

Ile Asn Leu Ala Gly Phe Arg Lys Glu Arg Tyr Pro Val Asp Ile Ala  
145 150 155 160

Tyr Asn Ile Thr Gly Cys Thr Ser Ser Cys Pro Glu Leu Lys Leu Ser  
165 170 175

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Asn Arg Thr His Ala Glu Arg Arg Asn Ala Leu Ile Thr Leu Asp Cys  
 180 185 190

Thr Asp Ala Ser Lys Ile Ala Pro Ser Glu  
 195 200

## (2) INFORMATION FOR SEQ ID NO:3:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 609 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: cDNA

## (ix) FEATURE:

- (A) NAME/KEY: CDS
- (B) LOCATION: 1..606

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

ATG AAA TCC CTA CAG ATC ATC TGT CCT CTT TTC GTT TTG GTA GCC AGA	48
Met Lys Ser Leu Gln Ile Ile Cys Pro Leu Phe Val Leu Val Ala Arg	
1 5 10 15	
GGA AGC TGT CGC TCA TGT GAA ATT TGT CAC AAT TTT GGA AAA GAT TGC	96
Gly Ser Cys Arg Ser Cys Glu Ile Cys His Asn Phe Gly Lys Asp Cys	
20 25 30	
GAG AGT GAG GAG GCA GAG GAA TGT GCC TCT CCA GAA GAT CAA TGT GGC	144
Glu Ser Glu Glu Ala Glu Glu Cys Ala Ser Pro Glu Asp Gln Cys Gly	
35 40 45	
ACA GTG TTG CTG GAG ATT TCA TCA GCA CCT ATT TCC TTC CGA TCC ATT	192
Thr Val Leu Leu Glu Ile Ser Ser Ala Pro Ile Ser Phe Arg Ser Ile	
50 55 60	
CAT AGG AAC TGT TTC TCA TCC AGC CTC TGC AAA CTT GAA CAC TTT GAT	240
His Arg Asn Cys Phe Ser Ser Ser Leu Cys Lys Leu Glu His Phe Asp	
65 70 75 80	
ATA AAT ATT GGA CAT GAT TCC TAT GTG AGA GGA AGA ATC CAC TGT TGT	288
Ile Asn Ile Gly His Asp Ser Tyr Val Arg Gly Arg Ile His Cys Cys	
85 90 95	

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GAT GAA GAA AGG TGT GAA GGA CAG CAA TTT CCT GGA CTG CCC CTC TCC Asp Glu Glu Arg Cys Glu Ala Gln Gln Phe Pro Gly Leu Pro Leu Ser 100 105 110	336
TTT CCA AAT GGA TAC CAC TGC CCT GGC ATT CTT GGT GCA TTC TCA GTG Phe Pro Asn Gly Tyr His Cys Pro Gly Ile Leu Gly Ala Phe Ser Val 115 120 125	384
GAC AGC TCT GAA CAT GAA GCT ATT TGC AGA GGA ACC GAA ACC AAA TGC Asp Ser Ser Glu His Glu Ala Ile Cys Arg Gly Thr Glu Thr Lys Cys 130 135 140	432
ATT AAC CTT GCG GGA TTC AGA AAA GAA AGA TAT CCT GTA GAC ATC GCT Ile Asn Leu Ala Gly Phe Arg Lys Glu Arg Tyr Pro Val Asp Ile Ala 145 150 155 160	480
TAT AAT ATC AAA GGT TGC ACT TCT TCT TGT CCA GAA CTG AAG TTG AGC Tyr Asn Ile Lys Gly Cys Thr Ser Ser Cys Pro Glu Leu Lys Leu Ser 165 170 175	528
AAT AGA ACT CAC GAA GAA CGT AGA AAT GAT CTA ATA ACA CTT GAA TGT Asn Arg Thr His Glu Glu Arg Arg Asn Asp Leu Ile Thr Leu Glu Cys 180 185 190	576
ACA GAT GCC TCC AAA ATT ACA CCT TCC GAA TAA Thr Asp Ala Ser Lys Ile Thr Pro Ser Glu 195 200	609

## (2) INFORMATION FOR SEQ ID NO:4:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Leu Glu Cys Glu Ile Cys Ile Gly Leu Gly Leu Glu Cys Asn Thr Xaa  
1 5 10 15

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Thr Lys Thr Cys Asp Ala Asn Gln Asp Thr Cys Val  
20 25

## (2) INFORMATION FOR SEQ ID NO:5:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 14 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Leu Glu Cys Glu Ile Cys Ile Gly Leu Gly Leu Glu Cys Asn  
1 5 10

## (2) INFORMATION FOR SEQ ID NO:6:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Ala Leu Ser Tyr Lys  
1 5

## (2) INFORMATION FOR SEQ ID NO:7:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Ser Cys Gly Thr Ser Asp Thr Cys His Leu Asn Tyr Val Glu Thr Thr  
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:8:

(A) LENGTH: 18 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Thr Cys Asp Ala Asn Gln Asp Thr Cys Val Thr Phe Gln Thr Glu Val  
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:9:

(A) LENGTH: 8 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Ala Pro Val Thr Leu Gly Leu Ile  
1 5

(2) INFORMATION FOR SEQ ID NO:10:

(A) LENGTH: 10 amino acids  
(B) TYPE: amino acid

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- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Glu Cys Thr Glu His Leu Val Ser Cys Arg  
1 5 10

(2) INFORMATION FOR SEQ ID NO:11:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 13 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Phe Trp Asn Val Leu Glu Asp Val Glu Val Asp Phe Lys  
1 5 10

(2) INFORMATION FOR SEQ ID NO:12:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 29 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

His Ser Cys Glu Ile Cys His Asn Phe Gly Arg Asp Cys Gln Ser Asp  
1 5 10 15

Glu Ala Glu Glu Cys Ala Ser Pro Glu Asp Gln Cys Gly



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20

25

## (2) INFORMATION FOR SEQ ID NO:13:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

His Ser Cys Glu Ile Cys His Asn Leu Gly Lys Asp Cys Glu Thr Glu  
1 5 10 15

Glu Thr Glu Glu Cys Ala Ser Pro Glu Asp Gln Cys Gly  
20 25

## (2) INFORMATION FOR SEQ ID NO:14:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Ile Thr Pro Ser Glu  
1 5

## (2) INFORMATION FOR SEQ ID NO:15:

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## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Arg Phe Asp Ile Asn Ile  
1 5

## (2) INFORMATION FOR SEQ ID NO:16:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Ile Asn Leu Ala Gly Phe  
1 5

## (2) INFORMATION FOR SEQ ID NO:17:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Ala Ser Lys Ile Thr Pro Ser Glu  
1 5

(2) INFORMATION FOR SEQ ID NO:18:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 7 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

Tyr Pro Gly Asp Ile Ala Ile  
1 5

(2) INFORMATION FOR SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

Leu Glu Cys Glu Ile Cys Ile Gly Leu Gly Leu Glu Cys Asn Thr Trp  
1 5 10 15

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Thr Lys Thr Cys Asp Ala Asn Gln Asp Thr Cys Val  
20 25

## (2) INFORMATION FOR SEQ ID NO:20:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

Ala Leu Ser Tyr Lys  
1 5

## (2) INFORMATION FOR SEQ ID NO:21:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

Ser Cys Gly Thr Ser Asp Thr Cys His Leu Asn Tyr Val Glu Thr Thr  
1 5 10 15

Pro His Asn

## (2) INFORMATION FOR SEQ ID NO:22:

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## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

Thr Cys Asp Ala Asn Gln Asp Thr Cys Val Thr Phe Gln Thr Glu Val  
1                      5                      10                      15

Ile Arg

## (2) INFORMATION FOR SEQ ID NO:23:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

Ala Pro Val Thr Leu Gly Leu Ile  
1                      5

## (2) INFORMATION FOR SEQ ID NO:24:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single

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(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

Glu	Cys	Thr	Glu	His	Leu	Val	Ser	Cys	Arg
1				5					10

(2) INFORMATION FOR SEQ ID NO:25:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 13 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

Phe	Trp	Asn	Val	Leu	Glu	Asp	Val	Glu	Val	Asp	Phe	Lys
1				5								10

(2) INFORMATION FOR SEQ ID NO:26:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 10 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

Gly Ser Glu Asn Gln Cys Lys Ser Ile Ile  
1                      5                      10

(2) INFORMATION FOR SEQ ID NO:27:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

Val Asn Pro Pro Asn Gly Leu Gln Cys Pro Gly Cys Leu Gly Leu Ser  
1                      5                      10                      15

Ser Leu Glu Cys Thr Glu  
20

(2) INFORMATION FOR SEQ ID NO:28:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 14 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

Cys Gly Thr Ser Asp Thr Cys His Leu Asn Tyr Val Glu Thr  
1                      5                      10

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## (2) INFORMATION FOR SEQ ID NO:29:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 7 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

Glu Phe Gly Leu Phe Phe Arg  
1 5

## (2) INFORMATION FOR SEQ ID NO:30:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 183 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

His Ser Cys Glu Ile Cys His Asn Phe Gly Lys Asp Cys Glu Gly Gly  
1 5 10 15

Glu Thr Glu Glu Cys Ala Ser Pro Glu Asp Gln Cys Gly Thr Val Leu  
20 25 30

Met Glu Val Ser Thr Ala Pro Ile Ser Phe Arg Ser Ile His Arg Asn  
35 40 45

Cys Phe Ser Ser Ser Leu Cys Lys Leu Glu Arg Phe Asp Ile Asn Ile



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50	55	60
Gly His Asp Ser Phe Leu Arg Gly Arg Ile His Cys Cys Asp Glu Ala		
65	70	75 80
Arg Cys Glu Ala Gln Gln Phe Pro Gly Leu Pro Leu Ser Phe Pro Asn		
85	90	95
Gly Tyr His Cys Pro Gly Ile Leu Gly Leu Phe Ser Val Asp Ser Ser		
100	105	110
Glu His Glu Ala Ile Cys Arg Gly Thr Glu Thr Lys Cys Ile Asn Leu		
115	120	125
Ala Gly Phe Arg Arg Glu Arg Phe Pro Gly Asp Ile Ala Tyr Asn Ile		
130	135	140
Lys Gly Cys Thr Ser Ser Cys Pro Glu Leu Arg Leu Ser Asn Arg Thr		
145	150	155 160
His Glu Glu His Arg Asn Asp Leu Ile Lys Val Glu Cys Thr Glu Ala		
165	170	175
Ser Lys Asn Thr Pro Ser Glu		
180		

## (2) INFORMATION FOR SEQ ID NO:31:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 182 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

His Ser Cys Glu Ile Cys His Asn Phe Gly Lys Asp Cys Gln Ser Asp

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1	5	10	15
Glu Thr Glu Glu Cys Ala Ser Ala Glu Asp Gln Cys Gly Thr Val Leu			
20	25	30	
Met Glu Val Ser Ser Ala Pro Ile Ser Phe Arg Ser Ile His Arg Lys			
35	40	45	
Cys Phe Ser Ser Ser Leu Cys Lys Leu Glu Arg Phe Asp Ile Asn Ile			
50	55	60	
Gly His Asp Ser Tyr Leu Arg Gly Arg Ile His Cys Cys Asp Glu Ala			
65	70	75	80
Arg Cys Glu Ala Gln Gln Phe Pro Gly Leu Pro Leu Ser Phe Pro Asn			
85	90	95	
Gly Tyr His Cys Pro Gly Ile Leu Gly Val Phe Ser Val Asp Ser Ser			
100	105	110	
Glu His Glu Ala Ile Cys Arg Gly Thr Glu Thr Lys Cys Ile Asn Leu			
115	120	125	
Ala Gly Phe Arg Lys Glu Arg Tyr Pro Ile Asp Ile Ala Tyr Asn Ile			
130	135	140	
Lys Gly Cys Thr Ser Ser Cys Pro Glu Leu Arg Leu Asn Arg Thr His			
145	150	155	160
Glu Glu His Arg Asn Asp Leu Ile Lys Val Glu Cys Thr Glu Ala Ser			
165	170	175	
Lys Ile Thr Pro Ser Glu			
180			

## (2) INFORMATION FOR SEQ ID NO:32:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 183 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single

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(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

His Ser Cys Glu Ile Cys His Asn Phe Gly Lys Asp Cys Glu Gly Gly  
1 5 10 15

Val Thr Glu Glu Cys Ala Ser Pro Glu Asp Gln Cys Gly Thr Val Leu  
20 25 30

Leu Glu Val Ser Thr Ala Pro Ile Ser Thr Arg Thr Ile His Arg Asn  
35 40 45

Cys Phe Ser Ser Ser Leu Cys Lys Leu Glu Arg Phe Asp Ile Asn Ile  
50 55 60

Gly His Asp Ser Tyr Met Arg Gly Arg Ile His Cys Cys Asp Glu Ala  
65 70 75 80

Arg Cys Glu Ala Gln Gln Phe Pro Gly Leu Pro Leu Ser Phe Pro Asn  
85 90 95

Gly Tyr His Cys Pro Gly Ile Leu Gly Leu Phe Ser Val Asp Ser Ser  
100 105 110

Glu His Glu Ala Ile Cys Arg Gly Ser Glu Thr Lys Cys Ile Lys Ile  
115 120 125

Ala Gly Phe Arg Arg Glu Arg Tyr Pro Ile Asp Ile Ala Tyr Asn Ile  
130 135 140

Lys Gly Cys Thr Ser Ser Cys Pro Glu Leu Arg Leu Ser Asn Arg Thr  
145 150 155 160

His Glu Glu His Arg Asn Asp Leu Ile Lys Val Glu Cys Thr Asp Ala  
165 170 175

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Ser Lys Ile Thr Pro Ser Glu  
180

## (2) INFORMATION FOR SEQ ID NO:33:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 181 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

Leu Glu Cys Glu Ile Cys Ile Gly Leu Gly Leu Glu Cys Asn Thr Trp  
 1 5 10 15  
 Thr Lys Thr Cys Asp Ala Asn Gln Asp Thr Cys Val Thr Phe Gln Thr  
 20 25 30  
 Glu Val Ile Arg Ala Pro Val Ser Leu Ser Leu Ile Ser Lys Ser Cys  
 35 40 45  
 Gly Thr Ser Asp Thr Cys His Leu Asn Tyr Val Glu Thr Ser Pro His  
 50 55 60  
 Asn Glu Leu Thr Val Lys Thr Lys Arg Thr Cys Cys Thr Gly Glu Glu  
 65 70 75 80  
 Cys Lys Thr Leu Pro Pro Pro Val Leu Gly His Lys Val Asn Pro Pro  
 85 90 95  
 Asn Gly Leu Gln Cys Pro Gly Cys Leu Gly Leu Ser Ser Lys Glu Cys  
 100 105 110  
 Thr Glu His Leu Val Ser Cys Arg Gly Ser Glu Asn Gln Cys Leu Ser  
 115 120 125

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Ile Ile Gly Lys Glu Phe Gly Leu Phe Phe Arg Ala Leu Ser Tyr Lys  
 130 135 140

Gly Cys Ala Thr Glu Ser Leu Cys Thr Leu Phe Glu Lys Arg Phe Trp  
 145 150 155 160

Asn Val Leu Glu Asp Val Glu Val Asp Phe Lys Cys Thr Pro Ala Leu  
 165 170 175

Pro Lys Ser Ser Gln  
 180

## (2) INFORMATION FOR SEQ ID NO:34:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 501 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: DNA

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

CACTCATGTG AAATTTGTCA CAATTTTGA AAAGATTGCG AGGGTGGGGA GACAGAGGAA	60
TGTGCCTCTC CAGAAGATCA ATGTGGCACA GTGTTGATGG AGGTTTCAAC AGCACCTATT	120
TCCTTCCGAT CCATTCATAG GAACTGTTTC TCATCCAGCC TCTGCAAAC TGAACGCTTT	180
GATATAAATA TTGGACATGA TTCCTTTTTG AGAGGAAGAA TCCACTGTTG TGATGAAGCA	240
AGGTGTGAAG CACAGCAATT TCCTGGACTG CCCCTCTCCT TTCCAAATGG ATACCACTGC	300
CCTGGAATTC TTGGTTTATT CTCAGTGGAC AGCTCTGAAC ATGAAGCTAT TTGCAGAGGA	360
ACTGAAACCA AATGCATTAA CCTTGCGGGA TTCAGAAGAG AAAGATTTC TGGAGACATC	420
GCTTATAATA TCAAAGGTTG CACTTCTTCT TGTCCAGAAC TGAGGTTGAG CAATAGAACT	480

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CACGAAGAAC ATAGAAATGA G

501

## (2) INFORMATION FOR SEQ ID NO:35:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 501 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: DNA

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

CACTCATGTG AAATTTGTCA CAATTTTGGG AAAGATTGCC AGAGTGACGA GACAGAGGAA	60
TGTGCCTCTG CAGAAGATCA ATGTGGCACG GTGTTGATGG AGGTTTCATC AGCACCTATT	120
TCCTTCCGAT CCATTCATAG GAAGTGTTC TCATCCAGCC TCTGCAAACT TGAACGCTTT	180
GATATAAATA TTGGACATGA TTCCTATTTG AGAGGAAGAA TCCACTGTTG TGATGAAGCA	240
AGGTGTGAAG CACAGCAATT TCCTGGACTG CCCCTCTCCT TTCAAATGG ATACCACTGC	300
CCTGGCATTG TTGGTGTATT CTCAGTGGAC AGCTCTGAAC ATGAAGCTAT TTGCAGAGGA	360
ACTGAAACCA AATGCATTAA CCTTGCGGGA TTCAGAAAAG AAAGATATCC TATAGACATC	420
GCTTATAATA TCAAAGGTTG CACTTCTTCT TGTCCAGAAC TGAGGTTGAA TAGAACTCAC	480
GAAGAACATA GAAATGATCT A	501

## (2) INFORMATION FOR SEQ ID NO:36:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 501 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

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(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

CACTCATGTG AAATTTGTCA CAATTTTGA	AAAGATTGCG AGGGTGGGGT GACAGAGGAA	60
TGTGCCTCTC CAGAAGATCA ATGTGGCACA	GTGTGCTGG AGGTTTCAAC AGCACCTATT	120
TCCACCCGAA CCATTCATAG GAACTGTTTC	TCATCCAGCC TCTGCAAAC TGAACGCTTT	180
GATATAAATA TTGGACATGA TTCCTATATG	AGAGGAAGAA TCCACTGTTG TGATGAAGCA	240
AGGTGTGAAG CACAGCAATT TCCTGGACTG	CCCCTCTCCT TTCCAAATGG ATACCACTGC	300
CCTGGCATTTC TTGGTTTATT CTCAGTGGAC	AGCTCTGAAC ATGAAGCTAT TTGCAGAGGA	360
AGTGAAACCA AATGCATTAA AATTGCGGGA	TTCAGAAGAG AAAGATATCC TATAGACATC	420
GCTTATAATA TCAAAGGTTG CACTTCTTCT	TGTCCAGAAC TGAGGTTGAG CAATAGAACT	480
CACGAAGAAC ATAGAAATGA T		501

(2) INFORMATION FOR SEQ ID NO:37:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 825 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

CTTGAGTGTG AGATTTGTAT CGGGCTGGGC	CTGGAATGTA ACACCTGGAC GAAAACCTGT	60
GATGCTAATC AAGATACTTG TGTTACCTTT	CAAACCTGAAG TGATAAGAGC CCCTGTGTCC	120

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CTCTCTTTGA TTTCAAAATC CTGTGGTACT TCTGACACTT GCCATCTTAA CTACGTGGAG	180
ACGAGTCCAC ATAATGAACT AACAGTGAAG ACCAAAAGAA CCTGCTGTAC TGGGGAGGAA	240
TGTAAAACTC TGCCACCGCC TGTGCTTGGA CACAAAGTCA ACCCACCCAA CGGACTTCAG	300
TGTCCTGGAT GCCTTGATT GTCCTCAAAA GAATGCACTG AACACCTGGT TTCCTGCCGG	360
GGATCTGAAA ACCAGTGTTC GTCTATAATT GGGAAAGAAT TTGGCCTTTT CTCAGAGCA	420
TTGTCTTATA AAGGATGTGC TACGGAGAGT CTGTGCACTT TATTTGAGAA GAGGTTCTGG	480
AATGTTTTAG AGGATGTTGA AACAACATAC TCCAAAACAG CCAAACAGC CAAAACAGCA	540
CTACATACTC CTAACCGTAT GCACAACAAC CAAAATGAA ATCCCTACAG ATCATCTGTC	600
TTCTTTTCGT TTTGGTAGCC AGAGGAAGCT GTCAAAAATG AAATCCCTAC AGATCATCTG	660
TCTTCTTTTC GTTTGGTAG CCAGAGGAAG CTGTCAAAAA TGAAATCCCT ACAGATCATC	720
TGTCTTCTTT TCGTTTGGT AGCCAGAGGA AGCTGTACTA CAACCTAAAT GAAGTCCCTC	780
TTATTCTGTT GCCTCTTTGG CACTTTCTTA GCTACAGGCA TGTGT	825

## (2) INFORMATION FOR SEQ ID NO:38:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:

Met	Lys	Ser	Leu	Gln	Ile	Ile	Cys	Leu	Leu	Phe	Val	Leu	Val	Ala	Arg
1															
			5												
							10								
												15			



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Gly Ser Cys

## (2) INFORMATION FOR SEQ ID NO:39:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:

Met Lys Ser Leu Gln Ile Ile Cys Leu Leu Phe Val Leu Val Ala Arg  
1 5 10 15

Gly Ser Cys

## (2) INFORMATION FOR SEQ ID NO:40:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

Met Lys Ser Leu Gln Ile Ile Cys Leu Leu Phe Val Leu Val Ala Arg  
1 5 10 15

Gly Ser Cys

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## (2) INFORMATION FOR SEQ ID NO:41:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

Met Lys Ser Leu Leu Phe Cys Cys Leu Phe Gly Thr Phe Leu Ala Thr  
1                      5                      10                      15

Gly Met Cys

## (2) INFORMATION FOR SEQ ID NO:42:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 57 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: DNA

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

ATGAAATCCC TACAGATCAT CTGTCTTCTT TTCGTTTTGG TAGCCAGAGG AAGCTGT

57

## (2) INFORMATION FOR SEQ ID NO:43:

## (i) SEQUENCE CHARACTERISTICS:

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- (A) LENGTH: 97 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

ATGAAATCCC TACAGATCAT CTGTCTTCTT TTCGTTTGG TAGCCAGAGG AAGCTGT

57

(2) INFORMATION FOR SEQ ID NO:44:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 57 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

ATGAAATCCC TACAGATCAT CTGTCTTCTT TTCGTTTGG TAGCCAGAGG AAGCTGT

57

(2) INFORMATION FOR SEQ ID NO:45:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 57 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:

ATGAAGTCCC TCTTATTCTG TTGCCTCTTT GGCACCTTTCT TAGCTACAGG CATGTGT

57